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Augmented workspace: designing an AR testbed

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Abstract:

We have implemented a tabletop setup to explore augmented reality (AR) vis We call this setup an "augmented workspace". The user sits at the table and manual task, guided by computer graphics overlaid on to his view. The setup testbed for developing the technology and for studying visual perception issues wears a custom video see-through head mounted display (HMD). Two color video cameras attached to the HMD provide a stereo view of the scene, and a third camera is added for tracking. The system runs at the full 30-Hz video frame rate with a latency of about 0.1 s, generating a stable augmentation with no apparent jitter in the composite images. Two SGI Visual Workstations provide the computing power for the system. In this paper, we describe the augmented workspace system in more detail and discuss several design issues.

Index Terms:

augmented reality data visualisation helmet mounted displays optical tracking three displays video cameras visual perception 0.1 s 30 Hz SGI Visual Workstations a reality testbed design augmented reality visualization augmented workspace color video cameras latency manual task overlaid computer graphics stable augmentation stereoscopic tabletop setup tracking video frame rate video see-through head mounted display visual perception

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